REMARKS

Amendments to the Claims

Applicants have canceled claims 1-12 and 18-28, without prejudice.

Applicants have amended claim 13, part c, to recite "a cell-free extract of a plant cell." Support for this amendment appears, for example, in claim 22 as originally filed and on page 6, lines 25-26. Applicants have amended claims 17 and 29 to improve their form.

Applicants have added claims 30-32. Support for claim 30 appears, for example, on page 6, lines 16-18. Support for added claims 31-32 appears, for example, on page 10, lines 12-13.

None of these amendments adds new matter.

The Rejection under 35 U.S.C. § 112, second paragraph

The Examiner has rejected claims 13-29 under 35 U.S.C. § 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, the Examiner states that "recombination and gene repair activities" is vague and indefinite. The Examiner contends that an enzyme that produces ATP could be considered a recombination enzyme because ATP is required for recombination and that a restriction enzyme could be consider a gene repair enzyme because it cleaves DNA, which is a step that occurs in some gene repair pathways. In the Examiner's view, without a definition of these terms in the specification, one of skill in the art would not be able to determine what components fall within the scope of these terms. Applicants respectfully traverse the rejection.

Applicants disagree that one of skill in the art would not understand the terms "recombination activities" or "gene repair activities." These terms are routinely used among those of skill in the art who study DNA repair processes, recombination and site-directed mutagenesis. However, solely to expedite prosecution, applicants have amended the claim to remove the phrase "enzyme mixture comprising recombination and gene repair activities" and to insert therefor "a cell-free extract of a plant cell," thus obviating the rejection.

The Rejections under 35 U.S.C. § 102

The Examiner has rejected claims 13-21, 23-25 and 27-29 under 35 U.S.C. § 102(a) as being anticipated by Cole-Strauss et al., Nucleic Acids Research 27(5): 1323-30 (1999) ("Cole-Strauss"). Specifically, the Examiner contends that Cole-Strauss teaches the composition of former claim 13, namely a duplex DNA, an oligonucleotide, a cell-free extract and a reaction buffer. The Examiner also contends that Cole-Strauss teaches compositions comprising oligonucleotides as recited in former claims 14-16, a gene-of-interest (the Kan gene) as recited in former claim 17, the use of cell extracts deficient in mismatch repair as recited in former claim 18, the use of a mammalian enzyme mixture or mammalian cell extract as recited in former claims 19-21, 23-25 and 27-28, and a self-complementary oligonucleotide with at least 5 base-paired bases as recited in former claim 29.

Applicants traverse in view of the claims as amended.

As described above, applicants have amended claim 13, part c, to recite a cell-free extract of a plant cell. Each of the other claims depends directly or indirectly from claim 13. Accordingly, the composition recited in each of the pending claims now requires

a cell-free extract from a plant cell. In contrast, Cole-Strauss describes a composition comprising a mammalian cell-free extract. Nowhere does Cole-Strauss teach a composition comprising a plant cell-free extract. Accordingly, Cole-Strauss does not anticipate the claims as amended and the rejection should be withdrawn.

The Examiner has rejected claims 13-20, 23-24 and 27 under 35 U.S.C. § 102(b) as being anticipated by Yamashita et al., EP 718,404 A2 ("Yamashita"). Specifically, the Examiner contends that Yamashita teaches the composition of former claim 13, namely a duplex DNA, an oligonucleotide, a cell-free extract (a RecA protein solution) and a reaction buffer. The Examiner also contends that Yamashita teaches compositions comprising oligonucleotides as recited in former claims 14-16, a gene-of-interest (LacZ gene) as recited in former claim 17, the use of cell extracts deficient in mismatch repair as recited in former claim 18, the use of eukaryote-derived recombination and gene repair activities as recited in former claims 19-20, and a mismatch repair activity as recited in former claims 23-24 and 27.

Applicants respectfully traverse in view of the claims as amended.

As described above, the composition recited in each of the amended claims requires a cell-free extract from a plant cell. In contrast, Yamashita describes a method of treating a target DNA and a DNA with a desired mutation with a protein capable of catalyzing a strand exchange reaction. Nowhere does Yamashita teach a composition comprising a cell-free extract, much less a plant cell-free extract. Accordingly, Yamashita does not anticipate the claims as amended and the rejection should be withdrawn.

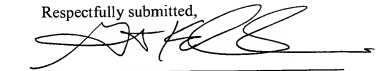
The Examiner has also rejected claims 13-29 under 35 U.S.C. § 102(e) as being anticipated by Baszcynski et al., United States Patent 6,528,700 ("Baszcynski"). The Examiner contends that Baszcynski teaches the composition of former claim 13, namely a duplex DNA, an oligonucleotide, a cell-free extract and a reaction buffer. The Examiner also contends that Baszcynski teaches compositions comprising oligonucleotides as recited in former claims 14-16, a gene-of-interest (AHAS gene) as recited in former claim 17, the use of cell extracts deficient in mismatch repair as recited in former claim 18, the use of plant cell extracts as recited in former claims 19-28 and a self-complementary oligonucleotide with at least 5 base-paired bases. Applicants traverse.

Contrary to the Examiner's assertion, Baszcynski does not teach a composition comprising each of a duplex DNA, an oligonucleotide, a plant cell-free extract and a reaction buffer. In support of his contention, the Examiner points to Column 11, lines 49-67; Column 13, lines 49-64; and Column 14, lines 60-67 of Baszcynski, but none of these passages teach all of the elements of former (or amended) claim 13. Baszcynski column 11, lines 49-67 describes a plasmid with the AHAS gene, but no oligonucleotide, no cell-free extract and no reaction buffer. Column 13, lines 49-64 and Column 14, lines 60-67 describe an experiment to evaluate the stability of chimeric RNA/DNA oligonucleotides in plant cell-free extracts, but no duplex DNA containing a target sequence. Thus, none of the passages identified by the Examiner teach a combination of all four elements required in the composition of claim 13. In fact, nowhere does Baszcynski teach such a combination. Accordingly, Baszcynski does not anticipate the claims and the rejection should be withdrawn.

Conclusion

In view of the foregoing amendments and remarks, applicants respectfully request reconsideration and early allowance of the pending claims in this application.

Respectfully submitted,



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